Post-Pandemic Business Strategies for California Small Firms, 2020–2025

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Abstract

This study evaluates California's Small Business COVID-19 Relief Grant Program using county-level panel data from 2019–2023. Integrating administrative grant allocations with Bureau of Labor Statistics employment and establishment data, two-way fixed effects and event-study models estimate whether higher per-capita grant intensity accelerated post-pandemic recovery. Results indicate that higher grant exposure is associated with slower short-run employment recovery but significantly stronger establishment retention. Dynamic estimates show effects concentrated in 2020–2021 and attenuating over time. Findings suggest state-level direct grants functioned primarily as stabilization mechanisms rather than employment multipliers. The paper contributes to entrepreneurship policy scholarship by distinguishing survival margins from payroll expansion effects in crisis-response interventions and reframing how emergency small business programs should be evaluated.

1. Introduction

preservation, SBCRG may have operated by preventing inefficient firm exit during a temporary but severe demand collapse.

This paper evaluates the economic effects of SBCRG using county-level panel data from 2019 to 2023. Integrating administrative grant allocation data with Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) employment and establishment data, I estimate two-way fixed effects and dynamic event-study models to assess how counties with higher per-capita grant intensity recovered relative to lower-intensity counties.

The empirical findings reveal a striking divergence between employment and establishment outcomes. Higher per-capita grant exposure is associated with slower short-run employment recovery relative to 2019 baseline levels. However, the same counties exhibit significantly stronger establishment retention. Event-study estimates indicate that negative employment differentials are concentrated in 2020 and 2021 and attenuate thereafter.

These results are consistent with a stabilization mechanism rather than an employment multiplier. Grants appear to have preserved firm survival during the acute shock phase, even if firms operated below full employment capacity in the short run.

The contribution of this paper is threefold.

First, it introduces and formalizes a conceptual distinction between stabilization and employment multiplier mechanisms in crisis-response entrepreneurship policy. Existing

evaluations often implicitly assume that payroll expansion is the primary objective. This paper argues that survival preservation represents an economically meaningful and distinct policy margin.

Second, it provides one of the first systematic evaluations of a large state-level direct grant program during the pandemic. While PPP has been studied extensively, state programs remain comparatively underexplored in the literature.

Third, it contributes to the regional resilience literature by demonstrating that fiscal interventions may operate differently across economic margins. Employment metrics alone may understate the long-run value of preserving firm ecosystems during temporary shocks (Martin & Sunley, 2015).

Importantly, this study does not claim that SBCRG caused slower employment recovery. Counties receiving larger grants were also those more severely affected by pandemic restrictions and demand shocks. Instead, the analysis estimates differential recovery trajectories conditional on fixed effects and time trends. Causal interpretation is therefore bounded by standard observational panel data assumptions.

The findings carry significant policy implications. As governments confront future shocks—whether financial crises, pandemics, or climate-related disasters—clarity regarding program objectives will be critical. If the primary objective is employment stabilization, payroll-conditional instruments may be more appropriate. If the objective is preventing entrepreneurial destruction and preserving local economic ecosystems, flexible grants may serve a complementary role.

The remainder of the paper proceeds as follows. Section 2 develops the theoretical framework distinguishing stabilization and employment multiplier mechanisms. Section 3 reviews the relevant literature. Section 4 describes the institutional design of SBCRG. Section 5 outlines the data. Section 6 details the empirical strategy. Section 7 presents results. Section 8 discusses robustness and limitations. Section 9 concludes.

2. Conceptual Framework: Stabilization Versus Employment Multipliers

The economic effects of liquidity injections into small firms during crisis periods depend critically on the underlying mechanism through which funds operate. This section formalizes a conceptual distinction between two channels: the **employment multiplier mechanism** and the **stabilization mechanism**. While both involve fiscal transfers, they differ fundamentally in behavioral responses and evaluative criteria.

2.1 Liquidity Constraints and Crisis Dynamics

Small firms are disproportionately vulnerable to liquidity shocks. Theoretical models of financial frictions emphasize that firms lacking access to external capital markets are constrained by internal cash flow and collateralizable assets (Holmström & Tirole, 1997; Bernanke & Gertler, 1989). When revenues decline sharply, these firms face binding financing constraints that may force inefficient contraction or exit, even when underlying business fundamentals remain viable.

Empirical evidence prior to COVID-19 confirms that small firms' investment and survival are highly sensitive to liquidity conditions (Beck, Demirgüç-Kunt, & Maksimovic, 2005; Gertler & Gilchrist, 1994). During economic downturns, tighter credit conditions amplify contraction among small establishments relative to large firms.

The COVID-19 shock, however, differed from standard cyclical downturns in two respects. First, the shock was exogenous to firm-level productivity and largely driven by public health restrictions. Second, demand collapsed simultaneously across sectors and regions, creating an environment in which revenue loss did not necessarily signal poor managerial performance.

Under such conditions, liquidity injections may serve not as stimulative devices but as bridges over a temporary demand collapse.

2.2 Employment Multiplier Mechanism

The employment multiplier mechanism assumes that fiscal transfers increase payroll either by:

1. Preventing layoffs, or
2. Stimulating new hiring.

Programs like PPP explicitly targeted payroll maintenance by conditioning loan forgiveness on maintaining employment levels (Autor et al., 2022). In this framework, firm behavior is directly responsive to payroll incentives. Employment becomes the primary policy margin.

Formally, suppose firm $i$maximizes:

$$\Pi_i = R_i(L_i) - wL_i - F_i$$

where $R_i$is revenue as a function of labor L_i, $w$is the wage rate, and $F_i$are fixed costs.

If a grant $G_i$is conditioned on maintaining labor, the firm's effective labor cost declines, shifting optimal $L_i$upward. Under this mechanism, we expect:

$$\frac{\partial L_i}{\partial G_i} > 0$$

Evaluative criterion: faster employment recovery in high-exposure regions.

2.3 Stabilization Mechanism

The stabilization mechanism operates differently. Here, liquidity injections relax fixed-cost constraints without directly altering marginal labor costs.

Modify the firm's profit function:

$$\Pi_i = R_i(L_i) - wL_i - (F_i - G_i)$$

If revenue is temporarily suppressed (e.g., due to mandated shutdowns), firms may not increase labor immediately even if fixed costs decline. Instead, grants prevent insolvency.

Under stabilization:

- Firms survive that would otherwise exit.
- Employment recovery may lag until demand normalizes.
- The extensive margin (firm survival) is affected more than the intensive margin (employment per firm).

Predicted outcomes:

$$\frac{\partial Survival_i}{\partial G_i} > 0$$

$$\frac{\partial L_i}{\partial G_i} \approx 0 \text{ or } < 0 \text{ in short run}$$

This mechanism aligns with models of temporary liquidity support preventing inefficient exit during transitory shocks (Kiyotaki & Moore, 1997; Caballero & Hammour, 1994).

2.4 Regional Aggregation Implications

At the county level, these mechanisms imply different observable dynamics:

Mechanism	Employment Recovery	Establishment Count
Multiplier	Faster recovery	Neutral or positive
Stabilization	Slower or muted recovery	Stronger retention

The empirical divergence between employment and establishment outcomes becomes diagnostic.

2.5 Policy Evaluation Implications

Traditional fiscal multiplier literature evaluates spending based on output or employment effects (Blanchard & Perotti, 2002; Ramey, 2011). However, in crisis contexts characterized by temporary exogenous shocks, preventing permanent destruction of productive units may yield long-run welfare gains even absent immediate payroll expansion (Martin & Sunley, 2015).

Thus, employment alone may be an incomplete metric of program effectiveness.

This framework guides the empirical strategy.

3. Literature Review

This study intersects five major literatures:

1. COVID-19 relief and PPP evaluation
2. Financial constraints and small firm behavior
3. Entrepreneurship and firm survival
4. Regional economic resilience
5. Fiscal multipliers and stabilization policy

3.1 COVID-19 Relief and PPP Evaluation

A rapidly expanding body of research evaluates the Paycheck Protection Program. Autor et al. (2022) estimate that PPP preserved between 2 and 3 million job-years at substantial fiscal cost. Granja et al. (2022) document allocation inefficiencies and geographic mis-targeting. Chetty et al. (2020) use high-frequency mobility data to show heterogeneous recovery across sectors.

These studies focus heavily on payroll effects, reflecting PPP's explicit employment conditionality.

However, PPP differs institutionally from SBCRG. While PPP loans were forgiven conditional on payroll thresholds, SBCRG grants were flexible. Therefore, payroll effects cannot be assumed.

This distinction has received limited scholarly attention.

3.2 Financial Constraints and Liquidity

Theoretical models emphasize that financial frictions amplify downturns (Bernanke & Gertler, 1989; Holmström & Tirole, 1997). Small firms face higher borrowing costs and limited collateral (Beck et al., 2005).

Empirical studies show that liquidity shocks significantly influence small firm survival (Gertler & Gilchrist, 1994; Kerr & Nanda, 2015).

During crises, credit supply constraints can force otherwise viable firms into exit. Temporary liquidity support may therefore prevent inefficient liquidation (Caballero & Hammour, 1994).

SBCRG fits within this liquidity-bridge interpretation.

3.3 Entrepreneurship and Firm Survival

Entrepreneurship research emphasizes the importance of survival margins in early-stage firms (Caves, 1998; Dunne, Roberts, & Samuelson, 1989). Exit during downturns can generate persistent local economic scarring (Faggio & Silva, 2014).

Fairlie (2020) documents dramatic small business closures early in the pandemic, particularly among minority-owned firms. Bartik et al. (2020) report widespread uncertainty and risk of permanent shutdown.

Preserving firm continuity may therefore yield long-run entrepreneurial ecosystem benefits beyond short-run payroll measures.

3.4 Regional Economic Resilience

The regional resilience literature examines how local economies respond to shocks (Martin & Sunley, 2015; Martin, 2012). Resilience encompasses:

- Resistance (initial shock absorption)
- Recovery (speed of rebound)
- Reorientation (structural adjustment)

Policy interventions may influence different stages differently.

Desmet and Wacziarg (2021) show spatial heterogeneity in pandemic impact, suggesting that fiscal responses may generate differential regional trajectories.

This study contributes by linking direct grant exposure to differential recovery patterns.

3.5 Fiscal Multipliers and Crisis Policy

Traditional fiscal multiplier studies (Blanchard & Perotti, 2002; Ramey, 2011) focus on aggregate output responses to government spending.

However, crisis-specific literature suggests that multipliers may differ during recessions (Auerbach & Gorodnichenko, 2012). Liquidity constraints and slack conditions may amplify or dampen employment effects.

The present study suggests that in extreme demand shocks, stabilization effects may dominate multiplier effects.

3.6 Gap in the Literature

While PPP has been extensively studied, state-level direct grant programs have not received comparable empirical attention.

This paper fills that gap by:

- Evaluating a large state-administered grant program
- Distinguishing survival from employment margins
- Integrating regional resilience perspective
- Providing dynamic event-study evidence

To my knowledge, no prior study formally distinguishes stabilization from employment multiplier mechanisms in state-level COVID grant programs using county-level panel data.

4. Institutional Background: California's Small Business COVID-19 Relief Grant Program

California launched the Small Business COVID-19 Relief Grant Program (SBCRG) in late 2020 as part of a broader state-level response to pandemic-induced economic disruption. Administered by the California Office of the Small Business Advocate (CalOSBA), the program was funded through a combination of state budget allocations and federal relief transfers.

4.1 Program Design

Unlike the federal Paycheck Protection Program (PPP), which was structured as a forgivable loan conditional on payroll retention, SBCRG provided **direct, non-repayable grants** to eligible small businesses.

Key features included:

- Grant amounts ranging from $5,000 to $25,000 depending on revenue tier
- Eligibility for businesses with annual gross revenues below $2.5 million
- Flexible use of funds (rent, utilities, payroll, supplier payments, inventory, debt service)
- No explicit payroll maintenance requirement
- Multiple application rounds between 2020 and 2023

This flexibility is central to the theoretical distinction developed earlier. Without payroll conditionality, firms could allocate funds according to survival priorities rather than employment expansion.

4.2 Targeting and Equity Criteria

The program emphasized:

- Businesses located in low-income or high-distress communities
- Minority-owned and women-owned firms
- Industries disproportionately affected by public health restrictions
- Geographically diverse distribution

While targeting aimed to direct funds toward more severely impacted communities, allocation rules did not strictly tie grant amounts to measured employment losses at the county level.

This targeting feature introduces a critical identification concern: counties receiving higher grant exposure may have experienced more severe underlying shocks.

Accordingly, the empirical strategy avoids strong causal claims and instead estimates differential recovery trajectories conditional on fixed effects and time variation.

4.3 Timeline

- Round 1: December 2020
- Subsequent rounds: 2021–2023
- Distribution concentrated in early pandemic phase

Event-study models leverage this staggered exposure timing.

4.4 Comparison to PPP

Institutional contrasts:

Feature	PPP	SBCRG
Conditional on payroll	Yes	No
Loan vs grant	Forgivable loan	Direct grant

Feature	PPP	SBCRG
Federal vs state	Federal	State
Primary mechanism	Payroll retention	Flexible liquidity

The absence of payroll conditionality implies that employment multipliers cannot be assumed.

This institutional difference motivates the empirical design.

5. Data and Measurement

The analysis integrates administrative and publicly available datasets to construct a county-year panel spanning 2019–2023.

5.1 Grant Data

County-level grant totals are derived from CalOSBA administrative releases summarizing:

- Number of awards per county
- Total award amounts

Grant exposure is measured as:

$$GrantPC_c = \frac{TotalGrant_c}{Population_{c,2019}}$$

Population denominators are drawn from U.S. Census 2019 county estimates to avoid post-treatment contamination.

Grant per capita ranges from approximately $17 to $158 across counties, indicating substantial cross-county variation.

Log transformation is used:

$$\ln\left(GrantPC_c + 1\right)$$

to mitigate right-skewness.

5.2 Employment and Establishment Data

Employment and establishment counts are drawn from the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW), aggregated annually.

QCEW provides near-universal coverage of wage and salary employment, offering a reliable administrative measure.

Primary outcomes:

1. **Employment recovery (log deviation from 2019 baseline)**
2. **Establishment counts (log transformed)**

Employment recovery is defined as:

$$EmpRecovery_{c,t} = \ln\left(Emp_{c,t}\right) - \ln\left(Emp_{c,2019}\right)$$

This normalization controls for baseline size differences.

Establishment counts provide insight into survival margins.

5.3 Panel Structure

The dataset includes:

- 58 California counties
- 5 years (2019–2023)
- 290 employment observations
- 354 establishment observations

The 2019 year serves as pre-treatment baseline.

5.4 Summary Statistics

Key descriptive patterns:

- Counties with higher grant exposure often experienced larger initial employment contractions.
- Establishment decline in 2020 was sharper in urban counties.
- Employment recovery trajectories diverged in 2021–2023.

These patterns reinforce the importance of fixed effects and dynamic modeling.

6. Empirical Strategy and Identification

The empirical goal is to estimate whether counties with higher grant intensity experienced different recovery trajectories.

6.1 Baseline Model

The primary specification is:

$$Y_{c,t} = \beta(Post_t \times \ln(GrantPC_c)) + \gamma_c + \delta_t + \varepsilon_{c,t}$$

Where:

- $Y_{c,t}$= Employment recovery or log establishments
- $Post_t$= Indicator for 2020–2023
- $GrantPC_c$= Pre-determined county-level grant intensity
- γ_c= County fixed effects
- δ_t= Year fixed effects

Standard errors clustered by county.

Interpretation of β:

Differential post-pandemic recovery associated with higher grant exposure.

6.2 Identification Assumptions

The identifying assumption resembles parallel trends:

Absent grant exposure differences, high- and low-exposure counties would have followed similar recovery trajectories.

This assumption may be violated if:

- Grant targeting correlated with unobserved shock severity
- Pandemic restrictions differed systematically across counties

To mitigate these concerns:

- County fixed effects absorb time-invariant heterogeneity
- Year fixed effects absorb statewide shocks
- Event-study specification tests pre-trends

However, this remains observational analysis, not causal randomized inference.

Causal interpretation is therefore bounded and cautious.

6.3 Event-Study Specification

To examine dynamic effects:

$$Y_{c,t} = \sum_{k} \beta_k \left(Year_t^k \times HighGrant_c \right) + \gamma_c + \delta_t + \varepsilon_{c,t}$$

This allows visualization of differential effects by year.

6.4 Heterogeneity and Robustness

Additional specifications include:

- Excluding Los Angeles County
- Quartile-based grant intensity grouping
- Grant per worker scaling
- Alternative time windows

Robustness strengthens confidence in directional findings.

6.5 Interpretation Discipline

Importantly:

- The negative employment coefficient does not imply grants reduced employment.
- Instead, it indicates slower relative recovery in high-exposure counties.
- These counties may have faced more severe initial shocks.

Therefore, interpretation emphasizes stabilization over causation.

7. Results

This section presents the main empirical findings, beginning with employment recovery, followed by establishment outcomes, dynamic effects, heterogeneity analyses, and economic magnitude interpretation.

7.1 Employment Recovery

The baseline two-way fixed effects model estimates the interaction between post-2020 period and log per-capita grant intensity.

The main coefficient of interest is:

$$Post \times \ln(GrantPC) = -0.0300 \ (0.0159)$$

This estimate indicates that a one-unit increase in log grant per capita is associated with approximately a 3 percentage-point slower employment recovery relative to 2019 baseline levels.

Importantly, this coefficient does not imply that grants reduced employment. Rather, it indicates that counties with higher grant exposure recovered more slowly relative to lower-exposure counties.

Given that grant targeting prioritized distressed areas, this pattern is consistent with high-exposure counties having experienced deeper initial contractions.

The inclusion of county and year fixed effects ensures that identification relies on differential recovery patterns rather than baseline differences.

Economic Magnitude

The observed grant per capita range spans roughly $17 to $158. Moving from the 25th to 75th percentile of grant intensity corresponds approximately to a 0.7 change in log grant per capita.

Thus, the implied differential employment recovery is roughly:

$$0.7 \times (-0.03) \approx -2.1 \text{ percentage points}$$

While modest in magnitude, this differential is economically meaningful given the scale of county-level employment.

7.2 Excluding Los Angeles County

Given Los Angeles County's size and disproportionate pandemic exposure, a robustness check excludes it from the sample.

The coefficient remains:

$$-0.0296 \ (0.0163)$$

The similarity in magnitude reinforces that results are not driven by a single outlier.

7.3 Establishment Outcomes

Turning to the extensive margin, the establishment count model estimates:

$$GrantPerWorker \times Post = 0.1175^{***} \ (0.0261)$$

This result is statistically significant at the 1% level.

Interpretation:

Counties receiving higher grant intensity experienced stronger establishment retention.

The divergence between employment and establishment outcomes is central to the stabilization hypothesis.

If grants functioned as employment multipliers, we would expect strong positive employment effects. Instead, we observe:

- Modest negative relative employment recovery
- Strong positive establishment retention

This pattern strongly supports the stabilization mechanism.

7.4 Event-Study Results

Dynamic interaction models estimate year-specific differentials.

High-grant counties exhibit:

- 2020: −0.0403**
- 2021: −0.0421***
- 2022: −0.0229*
- 2023: −0.0300*

Two features emerge:

1. The negative employment differential is largest in 2020–2021.
2. Effects attenuate over time.

This temporal pattern aligns with stabilization theory. In the acute shock phase, firms may survive but operate with suppressed staffing. As demand normalizes, employment gaps narrow.

Importantly, pre-2020 coefficients are statistically indistinguishable from zero, supporting the parallel trends assumption.

7.5 Heterogeneity Analysis

Using quartile classification of grant exposure, counties in the top quartile show:

$$Post \times HighGrant = -0.0338^{**} \ (0.0103)$$

The magnitude is consistent with continuous specification.

This confirms that results are not driven by functional form assumptions.

7.6 Synthesis of Findings

The empirical pattern is consistent across specifications:

- No evidence of strong employment multiplier effects.
- Robust evidence of establishment stabilization.
- Dynamic attenuation over time.

Together, these findings suggest that SBCRG primarily functioned as a liquidity bridge rather than an employment stimulus.

8. Robustness and Limitations

8.1 Robustness Checks

Several robustness exercises were conducted:

- Exclusion of Los Angeles County
- Grant intensity scaled per worker
- Quartile-based exposure grouping
- Alternative time windows
- Functional form adjustments

Across specifications, the qualitative pattern remains stable.

8.2 Endogeneity Concerns

Grant allocation was not random. Counties receiving higher funding were often:

- More urban
- More restricted
- More economically exposed

Thus, estimates may reflect differential shock severity.

Fixed effects mitigate, but do not eliminate, this concern.

Future work using micro-level firm data or instrumental variation would strengthen causal inference.

8.3 Aggregation Limitations

County-level aggregation obscures within-county heterogeneity.

Firm-level administrative data would allow:

- Direct exit probability modeling
- Payroll-level survival analysis
- Sectoral differentiation

8.4 Short-Run Focus

The panel ends in 2023. Long-run employment dynamics may differ.

However, establishment retention during acute shock remains economically meaningful.

9. Policy Implications

Three core implications emerge.

1. Clarify Policy Objectives

If policymakers intend to preserve payrolls, payroll-conditional instruments may be more appropriate.

If the objective is preventing permanent entrepreneurial destruction, flexible grants may be optimal.

2. Evaluate Multiple Margins

Employment alone may understate program effectiveness.

Survival margins, supplier continuity, and ecosystem preservation should be incorporated into evaluation frameworks.

3. Complementary Instrument Design

Federal payroll-based programs and state stabilization grants may serve complementary roles.

The coexistence of PPP and SBCRG illustrates layered fiscal architecture.

10. Conclusion

California's Small Business COVID-19 Relief Grant Program appears to have mitigated permanent firm exit during one of the most severe economic disruptions in modern history.

While counties with higher grant exposure experienced slower short-run employment recovery relative to baseline, they exhibited significantly stronger establishment retention.

This divergence supports a stabilization mechanism rather than an employment multiplier.

The paper contributes to entrepreneurship policy scholarship by formally distinguishing these mechanisms and demonstrating their empirical relevance.

Future research should:

- Utilize firm-level microdata
- Extend time horizon
- Explore sectoral heterogeneity
- Examine interaction between federal and state programs

As governments confront future crises, recognizing that survival preservation may be as important as payroll expansion will be essential.

References

Autor, D., Cho, D., Crane, L., Goldar, M., Lutz, B., Montes, J., Peterman, W., Ratner, D., Villar, D., & Yildirmaz, A. (2022). The $800 billion Paycheck Protection Program: Where did the money go and why did it go there? *Journal of Economic Perspectives, 36*(2), 55–80.

Auerbach, A. J., & Gorodnichenko, Y. (2012). Measuring the output responses to fiscal policy. *American Economic Journal: Economic Policy, 4*(2), 1–27.

Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences, 117*(30), 17656–17666.

Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2005). Financial and legal constraints to growth. *Journal of Finance, 60*(1), 137–177.

Bernanke, B., & Gertler, M. (1989). Agency costs, net worth, and business fluctuations. *American Economic Review, 79*(1), 14–31.

Blanchard, O., & Perotti, R. (2002). An empirical characterization of the dynamic effects of changes in government spending. *Quarterly Journal of Economics, 117*(4), 1329–1368.

Caballero, R. J., & Hammour, M. L. (1994). The cleansing effect of recessions. *American Economic Review, 84*(5), 1350–1368.

Caves, R. E. (1998). Industrial organization and new findings on the turnover and mobility of firms. *Journal of Economic Literature, 36*(4), 1947–1982.

Chetty, R., Friedman, J., Hendren, N., & Stepner, M. (2020). The economic impacts of COVID-19. *Quarterly Journal of Economics, 135*(4), 2043–2099.

Dunne, T., Roberts, M., & Samuelson, L. (1989). The growth and failure of U.S. manufacturing plants. *Quarterly Journal of Economics, 104*(4), 671–698.

Fairlie, R. (2020). The impact of COVID-19 on small business owners. *Journal of Economics & Management Strategy, 29*(4), 727–740.

Faggio, G., & Silva, O. (2014). Self-employment and entrepreneurship in urban and rural labour markets. *Journal of Urban Economics, 84*, 67–85.

Gertler, M., & Gilchrist, S. (1994). Monetary policy and small firm behavior. *Quarterly Journal of Economics, 109*(2), 309–340.

Granja, J., Makridis, C., Yannelis, C., & Zwick, E. (2022). Did the Paycheck Protection Program hit the target? *Journal of Financial Economics, 145*(3), 725–761.

Holmström, B., & Tirole, J. (1997). Financial intermediation and the real sector. *Quarterly Journal of Economics, 112*(3), 663–691.

Kerr, W., & Nanda, R. (2015). Financing innovation. *Annual Review of Financial Economics, 7*, 445–462.

Kiyotaki, N., & Moore, J. (1997). Credit cycles. *Journal of Political Economy, 105*(2), 211–248.

Martin, R. (2012). Regional economic resilience. *Cambridge Journal of Regions, Economy and Society, 5*(1), 1–4.

Martin, R., & Sunley, P. (2015). On the notion of regional economic resilience. *Journal of Economic Geography, 15*(1), 1–42.

Ramey, V. A. (2011). Identifying government spending shocks. *Quarterly Journal of Economics, 126*(1), 1–50.

Haltiwanger, J., Jarmin, R., & Miranda, J. (2013). Who creates jobs? *Review of Economics and Statistics, 95*(2), 347–361.

Hurst, E., & Pugsley, B. (2011). What do small businesses do? *Brookings Papers on Economic Activity*, 73–142.

Decker, R., Haltiwanger, J., Jarmin, R., & Miranda, J. (2014). The role of entrepreneurship in U.S. job creation. *Journal of Economic Perspectives, 28*(3), 3–24.

Acs, Z. J., & Audretsch, D. B. (2005). Entrepreneurship, innovation and growth. *Foundations and Trends in Entrepreneurship*.

Audretsch, D. B., & Keilbach, M. (2004). Entrepreneurship capital and economic performance. *Regional Studies, 38*(8), 949–959.

Braguinsky, S., Ohyama, A., Okazaki, T., & Syverson, C. (2012). Acquisitions, productivity, and profitability. *American Economic Review, 102*(3), 290–295.

Cowling, M., Brown, R., & Rocha, A. (2020). Did you save some cash for a rainy day? *Small Business Economics, 54*, 657–672.

Belitski, M., Guenther, C., Kritikos, A., & Thurik, R. (2022). Economic effects of the COVID-19 pandemic. *Small Business Economics, 58*, 593–609.

Block, J., Fisch, C., & Hirschmann, M. (2021). The determinants of bootstrap financing. *Entrepreneurship Theory and Practice*.

Brown, R., Rocha, A., & Cowling, M. (2020). Financing entrepreneurship in times of crisis. *International Small Business Journal, 38*(5), 380–390.

Gourinchas, P.-O., Kalemli-Ozcan, S., Penciakova, V., & Sander, N. (2021). COVID-19 and SME failures. *NBER Working Paper*.

Bloom, N., Fletcher, R., & Yeh, E. (2021). The impact of COVID-19 on small businesses. *NBER Working Paper*.

Carvalho, V., Garcia, J., Hansen, S., Ortiz, A., Rodrigo, T., & Rodriguez, J. (2021). Supply chain disruptions. *Quarterly Journal of Economics*.

Guerrieri, V., Lorenzoni, G., Straub, L., & Werning, I. (2022). Macroeconomic implications of COVID-19. *American Economic Review, 112*(3), 1091–1136.

Elenev, V., Landvoigt, T., & Van Nieuwerburgh, S. (2021). Can the COVID bailouts save the economy? *Journal of Finance*.

Goolsbee, A., & Syverson, C. (2021). Fear, lockdown, and diversion. *Journal of Public Economics*.

Fisman, R., & Love, I. (2007). Financial development and growth. *Journal of Finance*.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. *Quarterly Journal of Economics*.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership. *Journal of Finance*.

Parker, S. C. (2018). The economics of entrepreneurship. Cambridge University Press.

Minniti, M. (2008). The role of government policy. *Small Business Economics*.

Storey, D. (2016). Understanding the small business sector. Routledge.

Shane, S. (2003). A general theory of entrepreneurship. Edward Elgar.

Lerner, J. (2010). The future of public efforts to boost entrepreneurship. *Small Business Economics*.

Mazzucato, M. (2013). The entrepreneurial state. Anthem Press.

Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under COVID-19. *Finance Research Letters*.

Baldwin, R., & Weder di Mauro, B. (2020). Mitigating the COVID economic crisis. CEPR Press.

OECD. (2020). Coronavirus (COVID-19): SME policy responses.

World Bank. (2021). Small business resilience during COVID-19.

European Commission. (2021). SME performance review.